# TF SAFE

## Protecting the Force in Iraq Against Fire and Electrical Hazards

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Fire and electrical incidents in Iraq were at an all-time high in the summer of 2008, killing 19 people on MNF-I bases across the Iraq Joint Operations Area (IJOA). As a result, Multi-National Forces–Iraq (MNF-I) activated the Task Force Safety Actions for Fire and Electricity (TF SAFE) program in August 2008. TF SAFE's 3-year mission was to "protect the force against fire and electrical hazards in the environment we control; inside the wire on our Contingency Operating Bases, Locations, and Sites."

Under the direction of the MNF-I J4, Multi-National Corps-Iraq (MNC-I) C7, and later the USF-I J7, TF SAFE (deactivated on Nov. 12, 2011) combined the efforts of Service members, DoD civilians, and contractors from MNF-I, MNC-I, USF-I, the U.S. Army Corps of Engineers (USACE), and the Defense Contract Management Agency (DCMA) to combat the threat of fire and electrical hazards. In its 3-year history, TF SAFE reduced electrical shock

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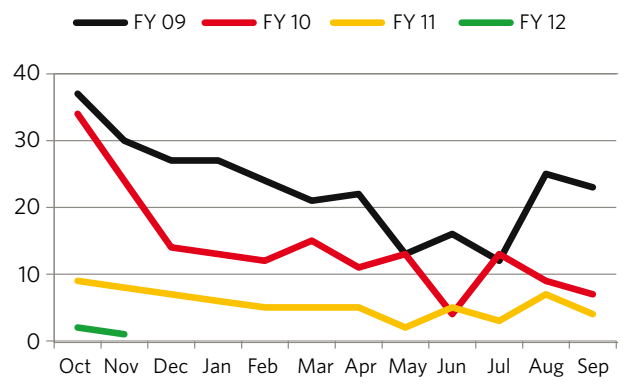
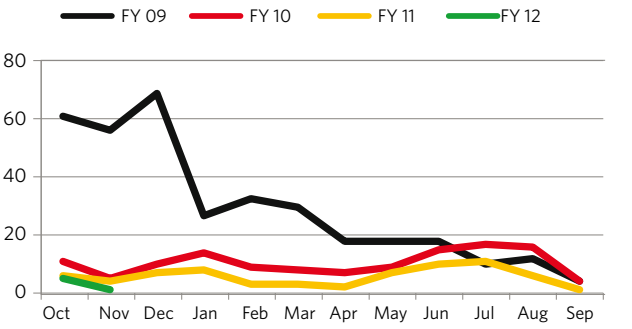
### *Figure 1. Shock Incident Reduction on US Bases in Iraq FY 2009–FY 2012.*




### *Figure 2. Electrical Fire Incident Reduction on US Bases in Iraq FY 2009–FY 2012.*




incidents by over 92 percent (Fig. 1), electrical fire incidents by 94 percent (Fig. 2), and deaths due to electrocution to zero. TF SAFE accomplished these feats by conducting more than 268,000 facility electrical inspections, repairing more than 3,400 electrical defects, and conducting 99 operational readiness inspections (ORIs) of contracted fire departments.

## TF SAFE Formation and Implementation

Maj. Gen. Kurt Stein recalled in 2009, "When I first got [to Iraq] a year ago [2008], I was afraid to touch any socket, I was afraid to turn my lights on ... I was afraid to take a shower." As the deputy chief of staff for MNF-I Combined Joint Staff 1/4/8, Stein played an integral role in the formation and implementation of TF SAFE. In 2008, the primary issues contributing to fire and electrical hazards were unsafe troop actions and lack of properly certified/trained personnel conducting installation and inspection of electrical equipment. In light of this, Maj. Gen. Stein directed TF SAFE to focus along three lines of effort: plans, policies and procedures (PPP), to establish operational conditions; facilities to mitigate electrical safety hazards; and awareness, to address the human factors associated with fire and electrical hazards.

Based on this guidance, TF SAFE immediately established a single Iraq-wide electrical standard for identifying, prioritizing, and repairing electrical deficiencies and established electrical inspection standard operating procedures (SOPs) based on the United States National Electric Code (NEC) versions 2005 and later 2008. The NEC and Chapter 25 of Army Regulation 420-1, *Fire Protection and Emergency Services* became the standard documents used for fire and electrical safety inspections on all U.S.-occupied facilities in Iraq.

TF SAFE also formulated a mission statement to focus its efforts on a common goal: "Task Force Safety Actions for Fire and Electricity protects the force through immediate and long-term actions to significantly reduce the risk of fire and electrical incidents throughout the IJOA." Specified tasks were added to nest with TF SAFE's mission statement; the first five directed the initial stages of formation, and the last was added in June 2011 to support the Department of State (DoS) and the Office of Security Cooperation-Iraq (OSC-I) as they constructed facilities to support the enduring mission in Iraq post-2011:

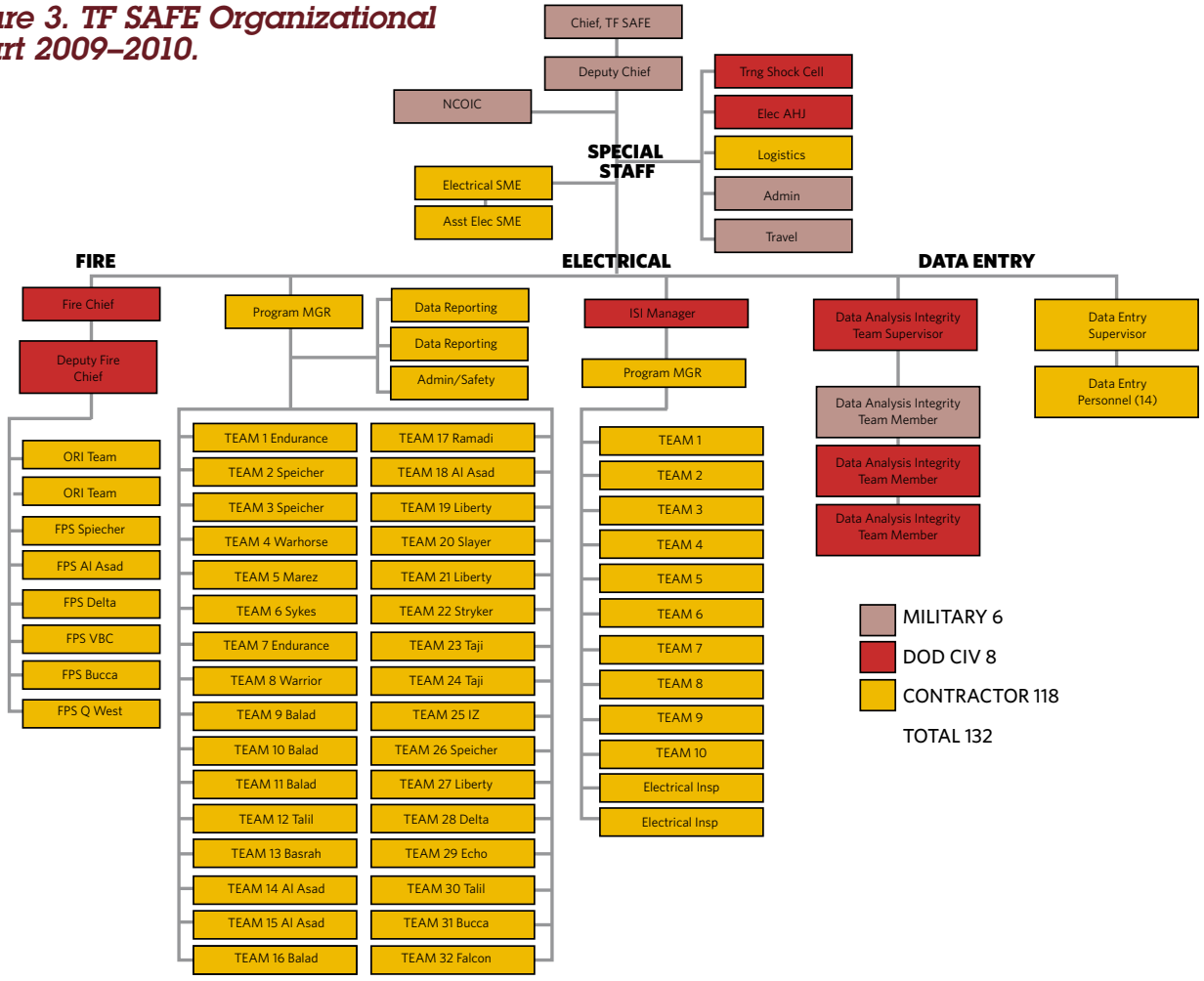
- Investigate electrical shocks & fires.
- Inspect and repair life, health & safety defects on facilities.
- Inspect contract fire departments.
- Conduct an electrical and fire safety awareness campaign.
- Adjudicate electrical code deviation requests.
- Advise and Assist DoS/OSC-I on electrical code compliance.

TF SAFE employed two-person teams of master/journeyman electricians and fire protection specialists (FPS) dispersed across each major base in Iraq to accomplish these tasks. TF SAFE's headquarters personnel, electrical teams, and FPS inspection teams are depicted in the organizational chart below for the 2009-2010 period. The corresponding bases where the electrical and FPS inspection teams were assigned are labeled accordingly in Fig. 3.

TF SAFE's electrical inspection teams focused primarily on facility inspections for life, health, and safety (LHS) deficiencies; in some instances, they conducted facility repairs. In coordination with DCMA quality-assurance representatives (QARs), TF SAFE inspection teams focused their continuous risk management (CRM) efforts on the following areas: showers/latrines (AB Units), containerized housing units (CHUs), life support areas (LSAs) and containerized office areas. The electrical inspection teams conducted a comprehensive check for unsafe conditions looking for improper splices, defective grounding and bonding, any evidence of arcing or overheating, fluorescent lights with unsafe magnetic ballasts and exposed or energized wires.

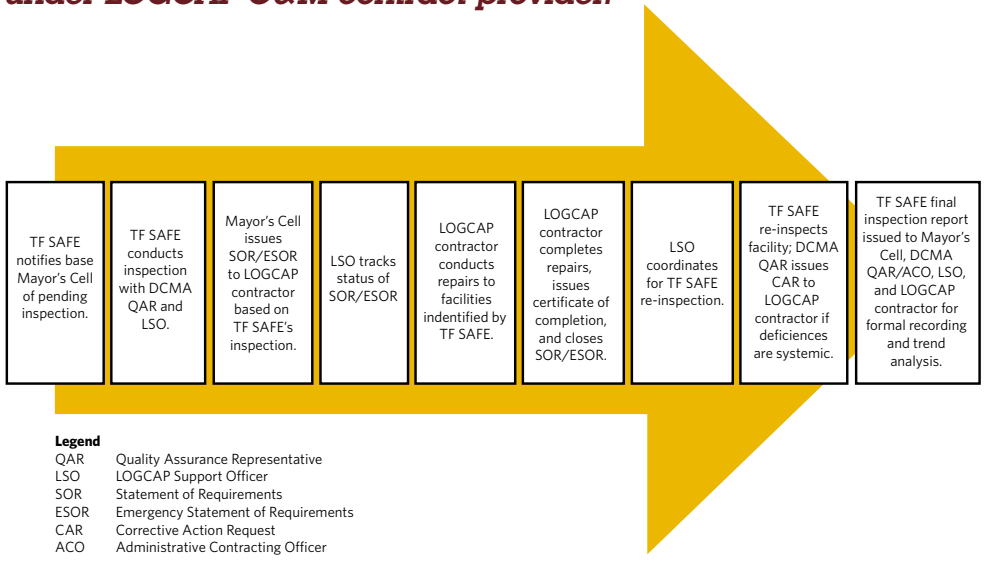
FPS teams focused their inspections on facility checks for operational smoke detectors, charged fire extinguishers, clear egress routes in buildings and proper storage of flammable material. Additionally, FPS teams conducted ORIs of contracted fire departments to ensure the departments were properly trained to conduct firefighting tasks and that fire equipment was in good working order.

## *Figure 3. TF SAFE Organizational Chart 2009–2010.*




As fire or electrical deficiencies were identified on military bases, TF SAFE reported the deficiencies to the mayor's cell or the unit commander, and the mayor's cell/unit passed the repair work to the contracted operations and maintenance (O&M) provider. The mayor's cell is akin to a city manager in the United States, handling facilities and infrastructure on military bases. In areas with no mayor's cell or contracted O&M provider, TF SAFE master electricians repaired the electrical deficiencies. Figure 4 depicts TF SAFE's inspection process for facilities under the LOGCAP O&M provider. As shown, TF SAFE routinely worked with DCMA QARs/administrative contracting officers (ACOs) and Logistics Civilian Augmentation Program (LOGCAP) support officers (LSOs) to hold the contracted O&M provider accountable and make the necessary repairs by tracking service order requests (SORs)/emergency service order requests (ESORs) and issuing corrective action requests (CARs).

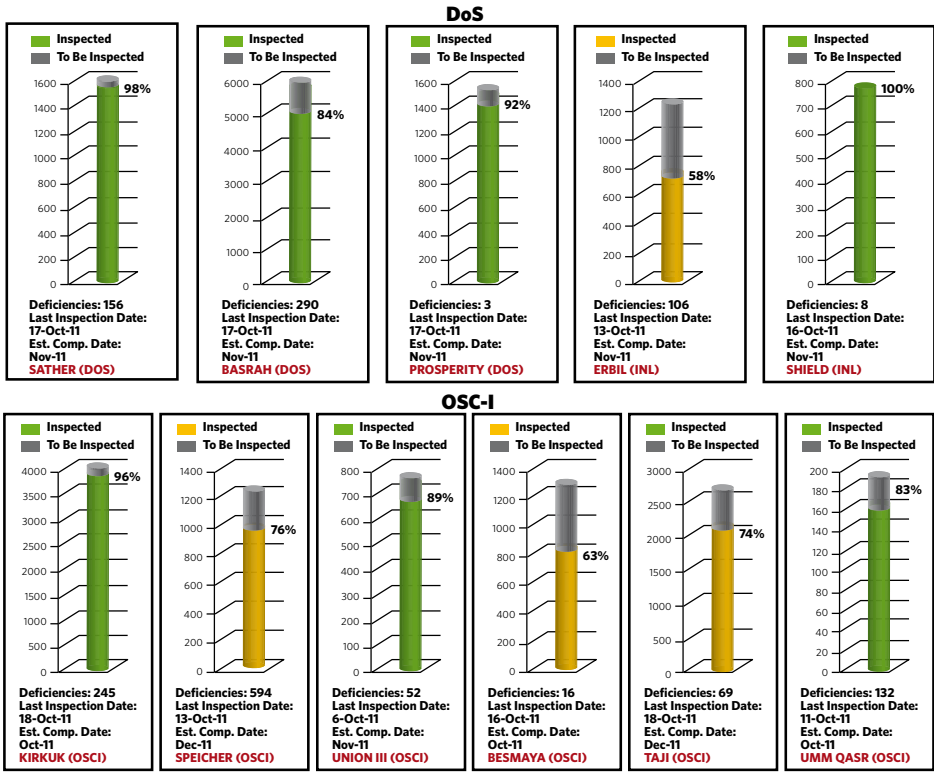
## *Figure 4. TF SAFE sample inspection process for facilities under LOGCAP O&M contract provider.*



## DoD Civilians and Contractors Provide Firefighting and Electrical Expertise

TF SAFE needed a highly skilled workforce of subject matter experts to accomplish its mission. In August 2008, MNF-I requested USACE provide master/journeyman electricians and FPSs to support the TF SAFE mission in Iraq. In September 2008, USACE Trans-Atlantic Center (TAC) of Winchester, Va., awarded a $59.5 million contract to support electrical and fire safety inspections throughout Iraq. The time and material (T&M) contract went to the joint venture Stanley Baker Hill LLC (SBH) of Muscatine, Iowa, for 1 year, with two 6-month option periods. Under this contract, SBH provided 70 master electricians and 32 fire protection specialists.

*Figure 5. TF SAFE sample facility electrical inspection tracking charts for each enduring site.*




The SBH team mobilized and deployed to Iraq by Oct. 30, 2008; USACE and SBH LLC personnel inspected over 176,200 military facilities, to include those covered under LOGCAP as well as facilities maintained by other contracted O&M providers. As the SBH contract only required the TF SAFE contractor to conduct electrical inspections, the USACE Philadelphia District awarded a $9 million contract to Inglett & Stubbs International (ISI) of Smyrna, Ga., for an additional 20 journeyman electricians, operating in two-man teams, to conduct inspections and make repairs on approximately 4,500 facilities on 250 contingency operating locations (COLs) across Iraq.

The SBH contract completed its second 6-month option period, and in September 2010 Versar International of Springfield, Va., won the firm fixed price electrical inspection and repair contract to continue electrical inspection and repair services across the IJOA. The Versar contract had a 1-year base period of performance (PoP) with two 5-month option periods. The U.S. government chose not to exercise the option PoP in ISI's contract, because the Versar contract now included electrical repair services; the ISI contract ended July 1, 2011.

The final augmentation to the TF SAFE team under the SBH contract was the data analysis team. Initially, TF SAFE input data for the electrical inspection effort via an Excel spreadsheet capturing electrical inspection records from the 249th Engineer Battalion (Prime Power) and USACE/SBH. SBH subcontracted to LCM Solutions to stand up a robust Maximo database; the electrical inspection report was revised as priorities and standards were established, SOPs were written, and policies and procedures were drafted. The Maximo database was fully implemented in 2009 and is still in use supporting electrical inspection data tracking efforts in Iraq. The Data Analysis and Integration Team (DAIT) provided the U.S. government oversight of the electrical inspection reports; USACE QAR Jasper Burton led this team and established a fixed transfer protocol (FTP) site for data analysis purposes.

In addition to contracted electricians, USACE also provided high-caliber DoD civilians who deployed in support of the TF SAFE mission. Personnel such as the TF SAFE theater fire chief and other FPSs, DoD civilian electricians, and the authority having jurisdiction (AHJ) to adjudicate electrical code deviation requests throughout theater all came through USACE TAC.

The personnel assigned to TF SAFE successfully completed their mission of protecting the force from fire and electrical hazards during Operations Iraqi Freedom (OIF) and New Dawn (OND). TF SAFE's mission requirements increased during USF-I's "Reposture the Force" phase of OND due to augmented new facility construction to support United States Mission-Iraq's (USM-I's) enduring presence and USF-I troop movement out of theater. The flexibility and professionalism of TF SAFE's personnel prevailed as three additional electrical inspection teams were added to accomplish 100 percent facility electrical inspection on all enduring sites; ensuring a

safe operating environment for USM-I as they assumed mission in 2012.

## What We Learned: Best Practices for Fire and Electrical Oversight

TF SAFE was a first-of-its-kind organization established to protect the force from fire and electrical hazards in a Contingency Operating Environment (COE). During the course of its activation period, TF SAFE established best practices to accomplish its mission. The following are recommendations to Defense Acquisition Workforce professionals for providing fire and electrical inspection oversight in a COE.

1. **Leverage all available means to recruit highly trained subject-matter experts**—in this case, master/journeymen electricians and fire protection specialists. TF SAFE used contracting and deployment of DoD civilian personnel to fill a majority of its ranks. Work in the areas of electricity and fire protection requires oversight from highly skilled professionals. The military is unable to fill the required number of personnel for proper oversight in a large operations area such as Iraq. The military can and should provide the requisite government program management and leadership to the task force; however, we must be prepared to leverage contracting and deployed DoD civilians to fill the ranks of electricians and fire protection specialists.

2. **Contracted fire departments in COEs require Quality Assurance/Quality Control (QA/QC) through the use of government subject-matter experts.** When TF SAFE started inspecting fire departments, there was no standardization of personnel or equipment; contracted fire departments failed to meet standards outlined in their contract. The immediate issues identified were poorly allocated equipment and poorly managed personnel. Through FPS inspections, TF SAFE established a training program for contracted fire departments to correct deficiencies. Specifically, TF SAFE initiated a training program to standardize firefighting tasks and equipment maintenance. The average score on TF SAFE's ORIs when first initiated was 77 percent, with the lowest score at 52 percent; after 3 years and four complete rounds of ORIs, the average score was 98 percent. This directly correlates to the 94 percent reduction in fires throughout the IJOA over TF SAFE's 3-year history.

3. **QA/QC of all contractor electrical work in a COE is essential and must be performed by government subject matter experts.** This didn't take place in Iraq until TF SAFE was activated; nearly five-and-a-half years after U.S. forces first embarked on OIF. Without proper oversight by government subject matter experts, contractors will naturally degrade their service to the lowest price technically acceptable according to their respective contract. This can result in using electricians who are not licensed properly, using faulty electrical material, or failing to conduct preventative maintenance inspections of electrical facilities. All those results are unacceptable and can result in catastrophic loss of life for Service members and civilians.

4. **The type of contract used to support fire and electrical inspection oversight in a COE must be flexible enough for the contractor to respond to dynamic and evolving government requirements.** The original electrical inspection and repair contract was a T&M-type contract, which might grow incrementally through the life of the contract;

The before photo (L) depicts spliced and exposed wires serving as a makeshift distribution panel. The after photo (R) depicts the distribution panel after TF SAFE corrected the deficiencies according to NEC 2008 standards.

Theater Fire Chief Sheldon Longnecker (R) conducts an ORI at Victory Base Complex, Iraq.

there were no definitive deliverables and the contract was based on a not to exceed price. The T&M-type contract was appropriate in the early formation of TF SAFE when government requirements were evolving. However, as the government was able to refine its requirements during the last 18 months of TF SAFE's activation period, the switch to a firm fixed price contract was appropriate. Firm fixed price contracts typically have higher upfront costs to the government but lower financial risk to the government over the life cycle of the contract, as the burden is on the contractor to control costs. Through the lessons learned in the formation of TF SAFE, the government is better equipped to define its requirements for fire and electrical oversight in a COE.

## The Way Ahead for Fire and Electrical Safety Oversight in Iraq

The deactivation of TF SAFE on Nov. 12, 2011, marked a key transition point for fire and electrical safety in Iraq. The standards and procedures set by TF SAFE will endure as USACE exercises the second option PoP on the Versar electrical inspection and repair contract to provide one electrical inspection team to directly support DCMA as it provides oversight for the LOGCAP IV contract. Fire protection oversight continues through the use of DCMA contracting officer representatives, composed of facility managers on DoS sites and installation managers on OSC-I sites.

TF SAFE's success is due to the hard work, perseverance, and technical expertise of the Service members, DoD civilians, and contractors who were a part of the Task Force during the 3-year activation period. They can rest assured that the standards and procedures they set will endure as a testament to their commitment to engineering excellence.

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